

REMARKS

Claims 1, 2, 9, 10, 14, 19, 17, 23-25, 36-39, 44, and 49 have been amended.

Claims 3-6, 8, 11-13, 16, 18, 20-22, 26-29, 40-43, 45-48, and 50-60 have been cancelled by this amendment without prejudice with respect to future filings.

Claims 3, 15, 26, 27, and 31-35 were previously withdrawn.

New Claim 61 has been added.

Claims 1, 36, and 44 are in independent format.

1. Rejections Under 35 U.S.C. § 102(b)

A. Claims 1, 2, 6-8, 14, 16, 19, 21, 23, 28-30, 36-39, and 41-44

Claims 6, 8, 16, 21, 28-29, and 41-43 have been cancelled.

The Examiner's rejection of claims 1, 2, 7, 14, 19, 23, 36-39, and 44 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,069,966 to *Jones* is respectfully traversed. The MPEP at §2131 provides:

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required in the claim.

The '966 *Jones* patent fails to anticipate independent Claim 1, because it does not expressly or inherently describe key features of the claims as set forth below.

i. Claims 1, 36, and 44

With respect to Claims 1 and 44, the Examiner contends that the '966 *Jones* patent shows a vehicle wheel system including an imaging sensor and a CPU

configured to receive at least distance information from the imaging sensor to facilitate one or more vehicle wheel service procedures.

Claim 1 as amended requires a central processing unit which is configured to receive an acquired optical image of a vehicle wheel rim from an imaging sensor assembly, and which is configured to identify at least one distance measurement associated with the imaged portion of the vehicle wheel rim. The '966 Jones patent fails to disclose or describe a system which is configured to image a portion of a vehicle wheel rim, and to acquire distance measurements associated with the wheel rim. Rather, the '966 Jones patent describes a system which is configured to measure tire features such as tread depth and sidewall profile, and not to measure or acquire images of features associated with a wheel rim. The wheel rim and the tire are two separate and distinct components of a vehicle wheel assembly. In the '966 Jones patent, tire tread depth and sidewall profile are determined by laser or other radiation line image displacement techniques. In contrast, Claim 1 requires an imaging sensor having a two-dimensional array of pixel elements to acquire an optical image of at least a portion of a vehicle wheel assembly rim, and a CPU which is configured to receive the acquired image and use it to identify at least one measurement associated with the imaged portion of the vehicle wheel rim. Wheel rim information is distinctly different from tire tread depth and tire sidewall profiles, and is utilized in vehicle service applications for procedures which are unrelated to tire tread depth and tire sidewall profile measurements. Accordingly, the '966 Jones patent fails to anticipate each and every required limitation of Claim 1 under 35 U.S.C. § 102(b).

Claim 36 of the present application sets forth an improved wheel parameter measurement apparatus which includes an optical energy sensing means for generating a two dimensional image of detected optical energy composed of a plurality of image pixels. A processing means is further included for receiving the images to extract data relating to at least one feature of the wheel rim. In contrast, the '966 *Jones* patent does not explicitly or inherently describe a wheel rim measurement device which includes an optical energy sensing means for generating a two dimensional image of detected optical energy composed of a plurality of image pixels, and wherein extracted data is related to a feature of a vehicle wheel rim. Accordingly, the '966 *Jones* patent fails to anticipate each and every required limitation of Claim 36 under 35 U.S.C. § 102(b).

Claim 44 of the present application sets forth a method for measuring a feature of a vehicle wheel assembly consisting of at least a vehicle wheel rim, where the vehicle wheel assembly is mounted for rotational movement about an axis on a vehicle wheel service system. The method of Claim 44 requires the steps of (1) detecting reflected optical energy from a three-dimensional area of the vehicle wheel rim; (2) generating a two-dimensional image composed of a plurality of image pixels of the three-dimensional area of the vehicle wheel rim from the detected optical energy; and (3) processing the generated image to extract data associated with at least one feature of the vehicle wheel rim. In contrast, the '966 *Jones* patent does not explicitly or inherently describe a method for acquiring images of a vehicle wheel rim or for extracting data associated with features of a vehicle wheel rim from acquired images. The '966 *Jones* patent is directed towards methods for radiation line illumination of a tire or tire sidewall for

purposes of obtaining measurements of tire tread depth and tire sidewall profiles. Accordingly, the '966 *Jones* patent fails to anticipate each and every required step of Claim 44 under 35 U.S.C. § 102(b).

ii. Claim 2

Claim 2 depends from Claim 1, and accordingly, includes each and every limitation of Claim 1. As set forth above, the '966 *Jones* patent fails to teach or suggest each and every limitation of Claim 1. Accordingly, the '966 *Jones* patent fails to teach or suggest each and every limitation of dependent Claim 2, and Claim 2 is seen as novel under 35 U.S.C. § 102(b) in view of the '966 *Jones* patent.

iii. Claim 7

With respect to Claim 7, the Examiner contends that the '966 *Jones* patent discloses a vehicle service system wherein the CPU is configured to utilize distance information to identify a surface profile of a vehicle wheel rim, citing Cols. 1 and 2.

A review of Cols. 1 and 2 of the '966 *Jones* patent fails to reveal any disclosure related to the identification of a wheel rim profile. The '966 *Jones* patent at Col. 2 describes measurement of a tire tread depth and tread pattern (Col. 2, lines 37-46, 56-59), and of tire sidewall condition assessment and profile measurement (Col. 2, lines 46-49; 59-63). A wheel assembly consists of two main components: 1) the tire; and 2) the wheel rim on which the tire is mounted. The '966 *Jones* patent fails to disclose any observation or measurement of wheel rim features, such as the wheel rim profile such as for use in determining placement locations of adhesive imbalance correction weights. Rather, the '966 *Jones* patent is limited to obtaining observations or measurements exclusively of the tire component of a wheel assembly. Accordingly,

Claim 7 is not anticipated under 35 U.S.C. § 102(b) by the '966 *Jones* patent for these reasons, and for the reasons set forth above in connection with parent Claim 1.

iv. Claim 14

With respect to Claim 14, the Examiner contends that the '966 *Jones* patent shows a vehicle wheel service system which is configured to utilize distance information to identify a miss-centering of a vehicle wheel rim on a rotating support structure, citing to Col. 1, lines 6-23. The cited passages indicate that the '966 *Jones* patent is directed to a vehicle service system capable of assessing *tire tread and sidewall and other tire condition factors*. There is no disclosure of the identification of a miss-centered mounting of a vehicle wheel rim on a rotating support structure, such the rotating shaft of a vehicle wheel balancer system. Accordingly, Claim 14 is not anticipated under 35 U.S.C. § 102(b) by the '966 *Jones* patent for these reasons, and for the reasons set forth above in connection with parent Claim 1.

Amendments to Claim 14 clarify that the miss-centering which is detected by the present invention is a miss-centered mounting of the wheel rim on the service system rotating support structure, as described at Para. [0103] of the Specification.

v. Claim 19

With respect to Claim 19, the Examiner contends that the '966 *Jones* patent shows a vehicle wheel service system which is configured to utilize distance information to identify features on a wheel and tire assembly including a wheel rim edge profile. The Examiner cites to Col. 2 generally as support for this position. A review of Col. 2 of the '966 *Jones* patent fails to reveal any disclosure related to the identification of a wheel rim edge profile. The '966 *Jones* patent at Col. 2 describes measurement of a tire tread

depth and tread pattern (Col. 2, lines 37-46, 56-59), and of tire sidewall condition assessment and profile measurement (Col. 2, lines 46-49; 59-63). A wheel assembly consists of two main components: 1) the tire; and 2) the wheel rim on which the tire is mounted. The '966 *Jones* patent fails to disclose any observation or measurement of wheel rim features, such as the wheel rim edge profile. Rather, the '966 *Jones* patent is limited to obtaining observations or measurements exclusively of the tire component of a wheel assembly. Accordingly, claim 19 is not anticipated under 35 U.S.C. § 102(b) by the '966 *Jones* patent for these reasons, and for the reasons set forth above in connection with parent Claim 1.

vi. Claim 23

Regarding Claim 23, the Examiner contends that the '966 *Jones* patent discloses a vehicle service system which is configured to observe an installed imbalance correction weight on a vehicle wheel assembly however, the Examiner does not provide a specific citation to support this disclosure. As amended, Claim 23 depends from Claim 1, and accordingly, includes each and every limitation of Claim 1, and further clarifies that the observation is of a weight installed on a vehicle wheel rim. As set forth above, the '966 *Jones* patent fails to teach or suggest each and every limitation of Claim 1. Furthermore, a comprehensive review of the '966 *Jones* patent fails to identify any passages describing the identification of an installed imbalance correction weight on a vehicle wheel rim from an acquired image. Accordingly, the '966 *Jones* patent fails to teach or suggest each and every limitation of dependent Claim 23, and Claim 23 is seen as novel under 35 U.S.C. § 102(b) in view of the '966 *Jones* patent.

vii. Claim 30

With regards to Claim 30, the Examiner contends that the '966 *Jones* patent shows a vehicle service system having a CPU configured to utilize distance information to *alter a configuration of one or more components of the vehicle service system*. The Examiner cites generally Cols. 2-4 of the '966 *Jones* patent.

As discussed above in connection with parent Claim 1, the '966 *Jones* patent fails to disclose a vehicle service system which is configured to obtain a measurement of a distance between an imaging sensor and an imaged portion of a vehicle wheel rim. Furthermore, the '966 *Jones* patent fails to disclose an alteration of components of the vehicle service system *in response to measured distance information*, either at the passages cited by the Examiner or elsewhere within the '966 *Jones* patent. Accordingly, Claim 30 is not anticipated under 35 U.S.C. § 102(b) by the '966 *Jones* patent.

viii. Claims 37-39

Claims 37-39 each depend from independent Claim 36, and accordingly, includes each and every limitation of Claim 36. As set forth above, the '966 *Jones* patent fails to teach or suggest each and every limitation of Claim 36. Accordingly, the '966 *Jones* patent fails to teach or suggest each and every limitation of dependent Claims 37-39, and Claims 37-39 are seen as novel under 35 U.S.C. § 102(b) in view of the '966 *Jones* patent for the same reasons as parent Claim 36.

B. Claims 46-49

Claims 46-48 have been cancelled.

The Examiner's rejection of Claim 49 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,822,582 to *Voeller* is respectfully traversed. The Examiner states that the '582 *Voeller* patent discloses a radio-frequency identification

(RFID) tag system for selecting an imbalance correction mode for a vehicle wheel assembly, and that the '582 *Voeller* patent further discloses that a camera may be used in place of the RFID tag system, citing Col. 10 line 28 through Col. 11.

In general, the '582 *Voeller* patent is directed towards a system and method for extracting stored information contained in a memory of an RFID tag associated with a vehicle wheel assembly. A review of the cited passages, and the disclosure of the '582 *Voeller* patent fails to reveal any description of the use of stereoscopic images of a vehicle wheel assembly. There is no disclosure in the '582 *Voeller* patent of utilizing an imaging system, and an RFID (Radio-Frequency Identification) system is not interchangeable with an imaging system. Accordingly, Claim 49 is seen as novel in view of the disclosure of the '582 *Voeller* patent under 35 U.S.C. § 102(e).

2. Rejections Under 35 U.S.C. § 103(a)

A. Claims 24, 50, and 53-55

Claims 50 and 53-55 have been cancelled.

With respect to Claim 24, the Examiner contends that the '966 *Jones* patent discloses systems that measure both the wheel rim and tire together, and that the '966 *Jones* patent discloses measuring surface defects of the tire, hence, the Examiner states that it would have been obvious with the disclosure of Jones to measure the surface defects of the wheel or the tire because they are shown by the systems disclosed in the art described by the '966 *Jones* patent to be measured together.

The '966 *Jones* patent is directed towards a system for obtaining a profile of a tire tread (to obtain tread depth measurements) or a tire sidewall profile (to detect bulges). The '966 *Jones* patent does not disclose the use of measurements of a

distance between an imaging sensor assembly and an imaged portion of a vehicle wheel assembly to identify vehicle wheel rim surface defects. The prior art described in the background of the '966 *Jones* patent appears to be directed towards systems for measuring tire profiles using linear images (light stripe), which can detect profiles by identifying deviations in linearity of the observed light stripes. Neither the '966 *Jones* patent nor the discussed art appear to describe any system which is capable of, or configured to, identify surface defects on a wheel rim, as distinguished from a tire, using distance measurements. Accordingly, Claim 24 is believed to be non-obvious under 35 U.S.C. § 103(a) in view of the '966 *Jones* patent.

B. Claim 45

Claim 45 has been cancelled.

C. Claims 9 and 10

The rejection of Claims 9 and 10 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,069,966 to *Jones* in view of U.S. Patent No. 4,336,658 to *January* is respectfully traversed. The Examiner's stated basis for the rejection of Claims 9 and 10 combines a reference from the tire tread depth analysis field (i.e. the '966 *Jones* patent) with a reference from the unrelated field of transducer-based vehicle wheel alignment systems (the '658 *January* patent) to show a vehicle wheel service system configured to utilize distance measurements to calculate radial runout of a bead seat surface on a vehicle wheel rim (Claim 9) and lateral runout of a wheel rim (Claim 10).

In contrast to the Examiner's stated basis, the '658 *January* system is completely incapable of being used as suggested by the Examiner. The '658 *January* system sets

forth a vehicle wheel alignment system which utilizes angle transducers mounted to the vehicle wheels to determine the position and orientation of the vehicle wheel assemblies. The '658 *January* system is completely incapable of being utilized for purposes of determining characteristics of the individual wheel rims, such as bead seat radial runout or wheel rim lateral runout. The passage cited by the Examiner in support of his position, Col. 8, lines 45-65, merely describes how the system of the '658 *January* patent is utilized to determine alignment angles between transducers mounted on two different wheels of a vehicle (i.e. front to back, or left to right). There is no disclosure or discussion in the '658 *January* patent of a method to utilize or modify the disclosed system for use in measuring the radial or lateral runout of an individual wheel rim about it's circumference, and hence, the combination of the '658 *January* patent with the teachings of the '966 *Jones* patent, which is directed to measurements of tire tread depth and tire sidewall profiles, fails to render obvious under 35 U.S.C. § 103(a) either of Claims 9 and 10.

D. Claim 17

The rejection of Claim 17 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,069,966 to *Jones* in view of U.S. Patent No. 6,173,213 to *Amiquet* is respectfully traversed.

Claim 17 depends from Claim 1, and accordingly, includes each and every limitation of Claim 1. As set forth above, the '966 *Jones* patent fails to teach or suggest each and every limitation of Claim 17. The Examiner's stated basis for the rejection of Claims 17 under 35 U.S.C. § 103 is that the '213 *Amiquet* patent, in combination with the '966 *Jones* patent, describes utilizing received distance measurements to identify

wheel rim spoke configurations and profiles. However, the '213 *Amiquet* patent merely discloses a system for observing the positional arrangement of a wheel on an assembly line, such that the wheel may be automatically rotated to a predetermined position on the assembly line. The '213 *Amiquet* patent teaches observation of reflected light from the spokes of the wheel, and comparison the observed reflected light with a stored reference pattern to determine wheel spoke configuration and orientation of the wheel on the assembly line. The '213 *Amiquet* patent does not teach or suggest a system which is capable of dynamically determining spoke configuration or individual spoke profile of an unknown wheel for which no stored reference pattern is available, and as such, fails to supply the missing teachings to the '966 *Jones* patent. Therefore, Claim 17 is seen as allowable under 35 U.S.C. § 103(a) over the '966 *Jones* patent in view of the '213 *Amiquet* patent.

E. Claims 20 and 22

Claims 20 and 22 have been cancelled.

F. Claim 25

The rejection of Claim 25 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,069,966 to *Jones* in view of U.S. Published Application No. 2002/0000121 to *Carter* is respectfully traversed. The Examiner's stated basis for the rejection is that the '966 *Jones* patent shows the features of Claim 25 except for the identification of imbalance correction weight placement locations, and that the '121 *Carter* publication discloses imbalance correction weight placement location identification at Para. [0004].

The '121 *Carter* publication fails to teach the use of distance measurements to identify imbalance correction weight placement locations on a vehicle wheel rim. The '966 *Jones* patent is directed towards measuring tire tread depth and tire sidewall profiles, not towards measuring surfaces of a vehicle wheel rim for purposes of identifying placement locations for imbalance correction weights. Accordingly, merely combining the '966 *Jones* patent with the '121 *Carter* publication fails to render obvious the features of Claim 25 under 35 U.S.C. § 103(a) as it does not suggest the use of distance measurements to identify imbalance correction weight placement locations on a vehicle wheel rim.

3. New Claims

New Claims 61 has been added as a dependent claim. New Claim 61 parallels dependent Claim 49, and is seen as allowable over the cited references for substantially the same reasons as Claim 49.

4. Conclusion

If for any reason the Examiner is unable to allow the application on the next Office Action and feels that an interview would be helpful to resolve any issues, the Examiner is respectfully requested to contact the undersigned attorney for the purpose of arranging such an interview.

Respectfully submitted,



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